



Southern Guilford Storm Energy Wise Team

Rebuilding a Culture

Mark Case, Sr. Advisor



Recycle Sub Team



**Grow-Out
Sub Team**



**Foldscopes
Sub Team**

COVID hit us hard. Our mentors and team veterans all graduated or went virtual. This year, we started from scratch and learned how to become a team and rebuilt our energy team from the ground up!

Goal # 1 - Recycle team

School: Southern Guilford High (Form 1 of 6)

Activity #1

ENERGY CONTENT ACTIVITIES

When we returned to school, one of the first things we learned was the amount of TRASH COVID generated. We joined the Pepsi Recycling Challenge and asked students to report weekly what they recycled. Pepsi tracked our energy equivalent.

STUDENT LEADERSHIP

Students contacted Pepsi, ordered recycle bins from previous year points and distributed them to anyone that wanted to recycle. The team used QR codes for students to report what they recycled.

RESOURCES

Pepsicorecycling.com and Google Drive

EVALUATION

As of April 1, 2022, our school has saved enough energy to power average size elementary school: 819,709 kWh!



Goal # 2 - No energy microscopy (fold scope team)

School: Southern Guilford High (Form 2 of 6)

Activity #2

ENERGY CONTENT ACTIVITIES

How do you do water studies and soil science under a microscope with no light? Fold Scopes! Foldscopes are a paper microscope that uses sunlight as the light source. There is no cost of electricity, no cost for expensive maintenance and no cost for climate controlled storage of large equipment

STUDENT LEADERSHIP

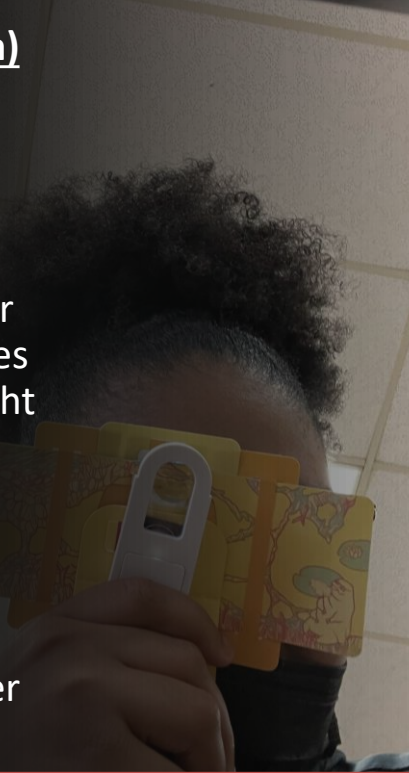
Students wrote a \$600 grant for the fold scopes. A core of students learned how to use them then peer taught others in the class. This has become sustainable through the grant. It is renewable each year as long as students report their learning and teaching.

RESOURCES

Foldscopes, water, soil and grant money

EVALUATION

A team of twelve students wrote the grant and became peer teachers. As a result, 78 students received a FoldScope and learned how to do microscopy in any condition. Students began to look at the water, dust and soil near their homes. No electricity was used!



Goal # 3 - What makes soil? (Grow out tesm)

School: Southern Guilford High (Form 3 of 6) Activity #3



ENERGY CONTENT ACTIVITIES

It takes nature 400 years to make one inch of topsoil! It takes about 500 kWh solar energy per year from the sun. That's 200,000 kWh to make 1 square yard, one inch deep of topsoil!

STUDENT LEADERSHIP

One thing a lot of kids learned was gardening during COVID. They wanted to know why potting soil was so expensive so we did some research. We conducted a lab to MAKE SOIL! It took three days to make a cup of soil from rock and decomposing material. Then we researched how much energy the sun provides.

RESOURCES

Granit gravel, hammers, grinders, sifters, cups, compost, water and TIME! We used hotsolarsolutions.com to help figure out how much solar energy was used.

EVALUATION

It did not take long for us to figure out, it is better to save our soil than buy it or try and make it! It took us 3 days to make 1 cup of soil! We decided to make posters to hang around school to tell kids how to save their dirt in their yards instead of letting it wash away.

Goal # 4 - Low Energy Growing (Grow out team)

School: Southern Guilford High (Form 4 of 6)
Activity #4

ENERGY CONTENT ACTIVITIES

We learned about hydroponic gardening and wanted to find a way to use less energy growing the plants. We measured the energy consumption from three different types of growing lights

STUDENT LEADERSHIP

Students wrote a Donor's Choose grant to purchase three different types of LED grow lights. We compared the energy use by using a kilowatt meter.

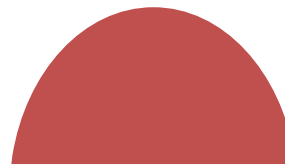
RESOURCES

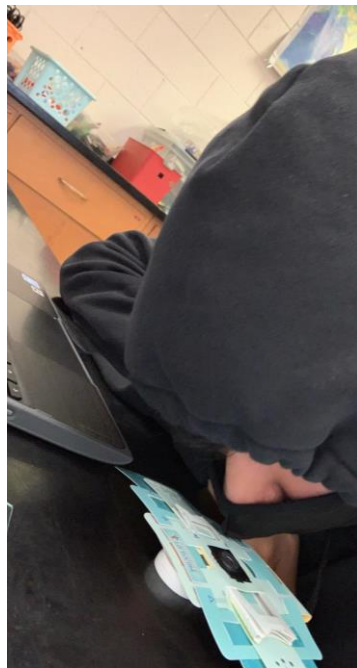
Kilowatt meter, Donor's Choose grant for \$348, Soled-light full spectrum light, Mars Hydro light, 150 micro grow light on stand.

EVALUATION

All three light systems were 750 watt each.

Although there was no difference in the amount of electricity each system used, the Soled-light full spectrum light had the best growing plants.





Reflecting Upon Success

- **As the Energy Wise team entered our 15th year, we did not realize how much the kids that went before us ever accomplished. We did not have them to teach us what to do. We looked at the books, slide shows and award submissions for guidance.**
- **Although our team was small, we grew over the year. Next year, we plan to expand and get freshmen to take our place as we move to sophomore and juniors**
- **By reaching our school, we were able to reach the entire student body and staff four times for a total of 8000 contact hours.**